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Have you considered the drawing up of a ten-year, or even of a five-year, program of your work? Its worth while.

Maine, Vermont, Connecticut, Massachusetts, New York, Pennsylvania and New Jersey are hereby requested to send in proposed five or ten year programs of fruit and vegetable work to be included in the November "Extension Horticulturist." Similar programs from other states will be asked for later.

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## A Ten-Year Program.

A director in one of the eastern states has recently asked his fruit specialist to prepare a 5-year or a 10-year program of work. At first thought, this would seem to be an almost impossible task, yet it will not prove to be so. This is certainly a timely subject and we are asking the fruit and vegetable specialists in seven of the eastern states to prepare programs for 5 or 10 years for publication in the November first "Extension Horticulturist." Some of the points to be considered in such a program are; the training of leaders such as county agents, county fruit and vegetable committeemen, and local demonstrators; Junior fruit and vegetable club work; long time pruning and spraying demonstrations; orchard and truck crop fertilizer demonstrations; orchard and truck crop management; home and farm orchards; small fruit demonstrations; cooperative fruit packing and marketing associations; truck crop marketing associations; auto tours; extension schools; and permanent fruit and vegetable gardens. The other states will be asked to report from time to time.

### Dwarf Home Orchard.

There seems to have been some misunderstanding regarding our discussion of the home orchard of dwarf trees. The primary object of advocating dwarf trees was the ease by which they may be dust sprayed with the hand duster. It was intended to advocate dwarf trees for the people who could not spray standard trees. There seems to be considerable fear among some of the fruit specialists that apple trees on Doucin roots will not be satisfactory, because the tops would not be properly nourished if the trees were planted so that roots could not be sent out from the trunk above the point of grafting or budding. On the other hand, if the trees are planted rather deep the scion portion would root and a tree of standard growth would be the final result. In this event the tree can still be kept dwarf by root pruning. This root pruning could easily be done as a demonstration and need not be considered too complicated for the average farmer or suburbanite who desires to keep the trees in dwarf size. Reference is hereby made to an article on the use of dwarf trees in the September number of "Fruit, Garden, & Home" on Page 15. This article is worthy of being read by extension fruit specialists.

The discussion on dwarf fruit trees asked for some time ago is given herewith in so far as replies have been received. We have not yet taken up the matter of the production of dwarf trees with the nurserymen but intend to do so soon. It is, of course, understood that dwarf apple trees on Doucin roots cannot be used in the very cold sections of the United States.

The matter of apple seedling stocks is receiving considerable attention now from the standpoint of mother stocks, that is, the increasing of the supply of stocks of a strong seedling by means of root cuttings. The purpose of this is to get uniform root stocks of the most vigorous type which cannot be done by growing stocks from seeds. Several of the research men are working on this phase of the apple root stock program. It will be just as feasible for work to be done with dwarf trees in mind by starting with a dwarf growing mother root. This dwarf type can be consistently used to produce dwarf trees for the home orchard and thus the





problem of securing Doucin stocks will be obviated. It is only fair to presume that a supply of reasonably hardy dwarf root stocks can be built up in this way which will succeed over a larger portion of the country than Doucin stocks will.

Let us have your opinion on this subject. Has anyone except the Ohio specialist heard of using quince roots in propagating apple trees?

The following replies have been received:

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Arkansas - Prof. C. Woolsey.

"I have found by experience that home orchards in the commercial belt are rather hard to put over. Likewise, in the cotton belt, we have encountered innumerable difficulties in our home orchard projects. I believe, however, that our home orchards for the south section of this State have been too large, and that apples should in most cases, have been left out. The project covering approximately 8 or 10 trees, including peaches, plums and figs, would suit the conditions better. I sincerely believe that every farmer, especially those not in the commercial fruit belt, should grow some fruit, as it is a well known fact that if they do not produce fruit, they do not buy it.

We have been doing some work here with small fruits, and have excellent gardens started in blackberries, dewberries, strawberries and others. Grapes are successful with us all over the state as a small home planting."

Connecticut - Prof. S. P. Hollister.

"Regarding the discussion of dwarf apple trees and the farm home orchard, I do not believe it is advisable for growers here in Connecticut to plant dwarf trees in preference to standards. On the ordinary farm there is plenty of room for standard trees. Some varieties of dwarf trees are shallow rooted and more likely to be blown over by storms, also more liable to be heaved by frost if the land is at all wet during the winter. Dwarf trees cost more than standards and this is an item which cannot be overlooked. It is my opinion that the only place for dwarf apple trees is in towns or cities where land is very scarce and where the grower wishes to have individual trees of several different varieties."

Kansas - L. C. Williams.

"We have at the present time over one hundred of the one acre orchards in Kansas planted in cooperation with the Extension Division and in my opinion the size of these orchards just about suits our conditions here in Kansas. I would not advocate a smaller orchard for several reasons.

First, I believe that the average Kansas farm can easily devote an acre to an orchard.

Second, I believe that forty trees can be cared for almost as easily as fifteen trees.





Third, I am quite sure that all of our cooperators can dispose of their surplus fruit in the orchard and thereby pay for spray materials and other expenses.

"We have had very little experience with fruit trees on dwarf stock in Kansas and I would be glad to see a test made of its usefulness. As to the advisability of dusting, our tests here in Kansas have shown such poor results that we could not conscientiously advise the use of spray material in that form. We are asking each of our cooperators to provide a barrel outfit so that liquid spray can be applied."

Michigan - Prof. H. A. Cardinell.

"In the commercial fruit counties of Michigan, Mr. Farrand and I can see no place for the farm orchard but for dietetic reasons mainly, we are interested in the small, well planned home orchard. We agree with your statement in the June issue of "The Extension Horticulturist" that the average farmer will not purchase the family fruit and vegetable requirements except during the harvesting season. The early and late varieties they rarely buy if the cost is high. Therefore, I am an advocate of a good but small home orchard on every farm in any county.

"We must recognize the varying state requirements and meet them regardless of personal desires. Our program of work for Michigan may be foreign to the specialist in Iowa. In exchanging plans of work with Nichols, Holland and Herrick of Iowa during the Wisconsin horticultural tour, I was impressed with the difference in state requirements. Nevertheless, I have the highest regard for men who can solve the small growers' problems and frankly admit that it is more difficult to mature a spray ring than to get commercial growers to adopt high pressure spraying.

"It has been my observation and conclusion that more home and farm orchardists would attend a meeting or demonstration held in a commercial acreage than we (county agent and specialist) could get specialized growers to gather at a home or farm orchard. This is as it should be since there are always more methods used by the specialized grower that the farm orchardist should follow.

"This State has some counties in the lower peninsula that are shipping little if any fruit and in such places we have and will give service upon demand. The entire upper peninsula of Michigan is the farm and home orchard site of the State and nine-tenths of our work there is along that line.

"Certainly any type of tree that has not had favor with the commercial grower should not be advised for the home orchardist. The dwarf orchard at this station has lost most of its dwarf characteristics. Very few of the dwarf stock roots remain and the tree is being supported by scion roots. It would be difficult to make recommendations so as to avoid this difficulty."

Minnesota - Prof. R. S. Mackintosh.

"In your recent circular you asked us to write concerning an article by you on dwarf apple trees. I have not paid much attention to dwarf apple trees because I do not believe the stocks are hardy in our upper Mississippi Valley. Furthermore, when I was at the Graduate School of Agriculture at



Cornell University many years ago, we had an opportunity to visit Prof. Bailey's dwarf apple orchard, and to note how much trouble he had had with the dwarf trees sending out roots from the bottom of the scion, thus changing the dwarf trees to standards. I agree with you that dwarf trees are easier to spray and take care of, but in this section we must have trees that are hardy under our climatic conditions."

Mississippi - Prof. Lyle Brown.

"I have read with a great deal of interest the discussion in the June number of the "Extension Horticulturist" on the proposed plan for the care of home orchards. Of course, we have not attempted anything of this nature in Mississippi, but it seems to me that this should be a very practical plan for getting our home orchards protected against insects and diseases. As you know, one of our greatest problems, if not the greatest, in this State is that of getting the average farmer to spray the home orchard. We have endeavored to reduce this operation to the most economical and simplest form, and we believe that we have reached the place where these orchardists should be financially and mentally able to spray their orchards if they so desire. But it looks like we cannot spray efficiently with anything else than a barrel spray pump, and it is very difficult to get farmers to use the barrel sprayers, as the initial cost seems a bit too large to them, and they do not usually feel that they can spare the time and labor which it requires to handle the barrel outfit when the spray should be put on. Practically all of them have a minimum amount of labor on the farm and it is kept busy on the farm practically all of the time, when it is necessary and the orchard should be sprayed.

"As you know, our climatic conditions are such in this section of the United States that trees live only a short time if they are not properly sprayed, and the spraying has to be continued through the summer months, if we are to get any fruit worth while. Until we are able to furnish the farmer with some such solution as mentioned in the "Extension Horticulturist," it looks as though we are not going to be able to have many very good orchards in the South. I would be very glad to see this plan tried out and if I can get sufficient cooperators, shall be glad to lend a hand in Mississippi. I have talked with several others about this plan and they too are inclined to believe that it would be quite practical."

Ohio - Prof. F. H. Beach.

"I thought you would be interested in the considerations we have been giving to the suggestion of a project for developing the home orchard with the planting of dwarf apple trees."

"I took up this matter in detail at Wooster, Ohio, September 5, at the meeting of the Ohio Nurserymen's Association. The nurserymen in general rather like the idea, but they raised several points upon which they wished further information and rather expressed themselves as wanting to be very sure that the scheme would work before giving the project any publicity.

"The nurserymen said that at the present time there was no reliable source of Doucin stocks and they felt that perhaps the first problem was to locate a desirable supply of this stock and distribute it among the members for use in propagating dwarf trees for Ohio planting. They were very favorable





toward using the recommended varieties for Ohio which we have prepared in cooperation with the Ohio State Horticultural Society in this work. One of the members felt that he had secured excellent results in dwarfing apple trees by using quince roots for stock and felt that we were making a mistake in considering anything else.

"At the present time our Experiment Station has had no experience in propagating and growing dwarf orchards and some of the nurserymen felt that the Station should give consideration to this problem and make some report before we took hold of the project. There were several expressions that dwarf trees were not long lived and often blew over because of weak root systems. The matter of working the trees high to prevent sprouting above the graft was considered but none have had any experience with this method of propagation. The advantages of taking care of a dwarf tree were readily recognized by all.

"We think that you have a very valuable idea here and one that deserves very careful consideration. If you can throw any light on the questions which I have raised, I would appreciate hearing from you as we expect to investigate this matter very thoroughly and stand ready to start a project just as soon as we feel sure we are on the right track."

Rhode Island - Director A. E. Stene.

"I have again looked over with a great deal of interest your suggestion in the "Extension Horticulturist" of June 1st under the caption "What Will the Future Home and Farm Orchard Be?".

"I think this is an excellent suggestion, but I would like to emphasize again what I think I mentioned when I talked with you in Washington, and that is that the dwarf stock which has been obtainable has been quite uncertain. It would seem to me therefore that preceding a campaign along the line which you suggest there should be a careful study of the problem of securing trees grafted on the right kind of stock.

"There is also need of outlining the plan more completely, possibly in a Farmers' Bulletin as you have suggested in the Horticulturist. The demonstration orchard is a good idea along this line, and I think it would be possible to get some started if the plan be outlined in some detail as to methods of laying out orchards, where stock can be obtained, varieties which should be planted, etc."

Vermont - Prof. M. B. Cummings.

"I am especially interested in your article of June 1st in the "Extension Horticulturist" in regard to the restoration and maintenance of the future home and farm orchard. So far as Vermont is concerned you are right that the spraying in small orchards is a burden, except where there is a spray ring for the reason that the men have neither the interest, information, or outfit, for properly protecting their trees from the usual pests. I feel quite sure that the hand duster is a solution of this problem for most of the pests. I have no doubt that the dust spray can control the apple scab and the codling moth, but in northern New England, especially in Vermont, we have a great deal of oyster-shell bark louse and quite a good deal of blister mite. Up to the present time I doubt if we can do without the dormant liquid spray for these





two pests. I, therefore, feel that it would be well to suggest the use of a hand liquid sprayer, or perhaps simply a bucket pump reinforced with hose and extension rod so as to properly spray for blister mite and bark louse."

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### Field Trip of Prof. Close.

#### Massachusetts.

On April 1st, Mr. R. A. Van Meter was transferred to the College teaching staff and Mr. F. E. Cole took charge of the fruit extension work. The permanent demonstration orchards are proving of immense value in all aspects of orchard management. Demonstration work in pruning, spraying, fertilizing, bridge grafting, fruit tours and spray rings is being pushed vigorously. Co-operating with the Massachusetts Fruit Growers Society, orchard tours with from 750 to 1,000 people in attendance have been held.

Mr. W. R. Cole is carrying on a vigorous campaign in horticultural manufacturers demonstrating the making of jams, jellies, marmalades, fruit butters, canned fruits and vegetables, pickles, relishes, etc. He is also doing successful work with fruit and vegetable storage rooms, pits and cellars.

All of the College and extension fruit men are cooperating to put on a very large and complete demonstration of all phases of apple growing, from the growing of nursery trees to the grading, packing and selling of the fruit, and the making and selling of fruit by-products, in the Massachusetts building of the Eastern States Exposition at Springfield.

#### Maine.

Besides the usual lines of demonstration work in pruning, spraying, fertilizing, and orchard management, Prof. A. K. Gardner is proving that apple nursery stock can be produced in Maine. The very high price of apple trees and the difficulty of securing the grades and varieties wanted have made it necessary to grow the home supply. Root grafts cost \$2.00 per hundred and if only 25% of them make vigorous trees the cost of these is only 10¢ per tree besides the planting and growing expense. The demonstrations visited have a large portion of good trees. There are 11 of these demonstrations including 5,800 grafts of 6 varieties.

In the 1922 tree pruning campaign, 114,254 fruit trees were pruned according to reports of 1,030 growers of 97 communities in 5 counties. The 1923 figures on pruning were not available. In 1921, there were 77,314 fruit trees pruned.

Prof. Gardner has work with 11 county orchard committeemen and 158 orchard demonstrators. He trains the county agents and they in turn train local demonstrators as they are needed.

Dust spraying is giving splendid control of insects and diseases.



## Connecticut.

Prof. W. H. Darrow is getting striking results in orchard management particularly in the use of fertilizers and pruning. Spraying is successful in proportion to the extent that demonstrators follow the spray schedule he includes in the demonstration agreement. Seven of the demonstration orchards, all but one in sod, were visited. The effect of 5 to 8 pounds of nitrate of soda per tree on bearing trees is remarkable. Trees fertilized 3 years are nearly twice the size of check trees adjoining and are loaded with several times as much fruit. These orchards are attracting very much attention and the results in the Johnson orchard at Bethlehem have been published widely in horticultural periodicals.

The small fruit demonstrations, mostly red and purple raspberries, but a few black raspberries, blackberries and strawberries, will be of great value in getting berries planted in home gardens and for local market. Four of the demonstrations were visited. Cuthbert and Latham are the best of the red varieties and Columbian was usually very good.

Field meetings will be held in the orchards to show the results between the demonstration and check trees. One big two-day orchard tour of 60 autos in cooperation with the State Pomological Society was held in July, and three county orchard tours have also been held.

## New Jersey.

Mr. A F. Mason is stressing pruning, spraying, cultural methods, cover crops, fertilizers, thinning fruit, grafting, and has some small fruit and grape work. There are 87 pruning demonstrations of which 9 are long time apple pruning demonstrations and 4 long time peach pruning demonstrations. These long time demonstrations are the important ones with a new lesson to teach each year. The spraying program is pretty heavy with 49 demonstrations. A very complete spray card service is in use and more than 11,000 timely spray cards were sent out. This is valuable service and is guided by insect and disease development so as to reach the orchardist at just the right time.

Several orchards were visited and the fertilizer, pruning and spraying work was showing most satisfactory results. Some of the fruit thinning was done in cooperation with the New Jersey Fruit Cooperative Association which, . . . required all of its 65 members to also prune, fertilize and spray according to demonstration teaching. This association has a field man as general adviser to the members. When pruning demonstrations were held the field man, orchard owners and their pruning crews attended and were taught to prune.

Arrangements are being made for picking and grading apples in demonstration orchards in preparation for field days to show the results of the work.

## A Wonderful Single-Idea Exhibit.

Miss Miriam Birdseye of the Federal Extension Service, visited the Eastern States Exposition at Springfield, Massachusetts, and has furnished us the following account of the demonstration fruit exhibit staged by the Agricultural College, Massachusetts State Department of Health, State Apple Producers Association and the fruit extension specialists. The slogan for





the exhibit was "Apple Raising, a Great Growing Industry for Massachusetts," and greeted the visitors at every turn.

In the center of the main room was a small apple orchard of real trees of different ages as nursery trees, one year olds, two year olds, etc., up to a bearing tree in full fruit. This bearing tree illustrated all the features of pruning, spraying and thinning demonstrated in the side exhibits. Back of this was a great painting which covered the whole rear wall opposite the entrance and showed a Massachusetts farm home beside a tiny pond, with an apple orchard at the rear and a railroad station not far away down the road.

At the left of the front entrance in a large bay was a tempting display of apple products. The exhibits on the left of the aisle leading up toward this picture showed, in order: box-lots of apple varieties best suited to Massachusetts conditions, sub-divided as to market and home use, and also varieties commonly grown but not especially adapted to Massachusetts conditions; features to be considered in choosing young nursery stock; grafting; pruning; protection from insects and plant diseases which threaten Massachusetts apples; and fruit thinning. A convincing argument for thinning to ten inches was presented by piles of fruit taken from trees of the same age, one of which had not been thinned at all and others which had been thinned to 4, 6, 8 and 10 inches, respectively. The size and general appearance of the apples improved noticeably with each increase of space, till the 10 inch-thinned fruit was of exhibit size and quality.

The right aisle featured the marketing side of the industry. One saw first a cooperative packing-plant suitable for a rural community, with a Cutler sizing machine in operation. The wall above this exhibit pictured a farmers' cooperative apple storage plant and shipping station. Next came a commission merchant office, and after that a model city wholesale market, in which were displayed price lists, notices of car-lot shipments, market reports and apples properly packed in baskets, boxes and barrels set out to catch the eye of the wholesale buyer. The large bay to the right was devoted to a full sized modern retail grocery store featuring a window display of apples in barrels, baskets and boxes, and also in attractive array for retail selling. Placards called attention to the delights and benefits of eating juicy Massachusetts apples. On one side of the store was an exhibit of apple products next to a long counter at which the making of these products was in progress, and behind which stood representatives of the Agricultural College to answer questions about home and commercial manufacture.

One left the building with the idea firmly fixed in mind that apple-raising was indeed a great growing industry for Massachusetts.

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#### Orchard Tours.

We regret that we cannot include in this number the accounts of orchard tours which some of the specialists have sent in. They will be included in a later number.

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Note - The four extension publications received during September will be listed next month.

W. R. Beattie, Extension Horticulturist.  
C. P. Close, Extension Pomologist.

